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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/790,965	03/02/2004	Jathan D. Edwards	53868US05	2139

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Attention: Eric D. Levinson
Imation Corp.
Legal Affairs
P.O. Box 64898
St. Paul, MN 55164-0898

EXAMINER

BODAWALA, DIMPLE N

ART UNIT	PAPER NUMBER
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1791

MAIL DATE	DELIVERY MODE
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02/15/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/790,965	Applicant(s) EDWARDS ET AL.	
	Examiner DIMPLE N. BODAWALA	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 30-35 and 42-46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 30-35 and 42-46 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. <u>2/6/2008, 2/11/2008</u> . |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____. | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

Response to Amendment

⇒ Claims 30-35 and 42-46 are pending.

⇒ Claims 1-29 and 36-41 are cancelled.

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.
2. The indicated allowability of claims 30-35 and 42-46 is withdrawn in view of the newly discovered reference(s) to Kerfeld (U S Patent No. 6,190,838), Deguchi et al. (U S Patent No. 5,477,524), Sandstrom (U S Patent No. 6,382,955) and Sasaki et al. (U S Patent No. 5,325,353). Rejections based on the newly cited reference(s) follow.

New Ground of Rejection

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. Claims 30-32, 35, 42 and 45-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kerfeld (U S Patent No. 6,190,838) in view of Sandstrom (U S Patent No. 6,382,955).

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5. Kerfeld ('838) discloses a master which is involved to make a stamper (See col.1 lines 27-30) , wherein stamper (36) for use in creating replica disk substrate having stamper surface defining a data layer (44) and a stamper pattern (44) formed in the data layer defined by adjacent stamper lands (46) and stamper groove (48), wherein grooves (48) extend down into the stamper surface, wherein the stamper groove (48) defines groove bottoms and stamper land (46) defines stamper land tops, wherein the stamper groove bottoms are wider than the stamper land tops (See figure 2). It further teaches that the stamper groove bottoms are generally flat and coplanar (see col.6 lines 59-65). It further teaches that stamper pattern defines stamper groove bottoms include sharp corner (See figure 2). Figure 2 further teaches that the stamper is a second generation stamper (40) created from the first stamper (38), which was in turn created from a master disk wherein the master disk (36) includes a master pattern (44) like the stamper pattern of the second-generation stamper (40).

6. Claim 35 of the instant application contains the method step for the production of the claimed the second-generation stamper, which is created from a first generation stamper. With regard to the claim recitations regarding the method of forming the apparatus, such relate

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to the method of producing the claimed apparatus, which does not impart patentability to the apparatus claims. The determination of patentability is based on the product apparatus itself, *In re Brown*, 173 USPQ 685, 688, and the patentability of a product does not depend on its method of production, *In re Pilkington*, 162 USPQ 145, 174; see also *In re Thorpe*, 227 USPQ 964 (AFC 1985).

7. Claims 42 and 46 of the instant application contain the method step for the production of the second-generation stamper, which is created from a first generation stamper, and also the laser spot size associated with a laser used to perform laser etching of the master pattern of the master disk. With regard to the claim recitations regarding the method of forming the apparatus, such relate to the method of producing the claimed apparatus, which does not impart patentability to the apparatus claims. The determination of patentability is based on the product apparatus itself, *In re Brown*, 173 USPQ 685, 688, and the patentability of a product does not depend on its method of production, *In re Pilkington*, 162 USPQ 145, 174; see also *In re Thorpe*, 227 USPQ 964 (AFC 1985).

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8. Kerfeld ('838) discloses all claimed structural limitations as discussed above, but fails to teach or suggest dimension of the track pitch which is less than 425 nanometer.

9. Sandstrom ('955) discloses an apparatus which comprises disc substrate (24) having a formatted surface (34) with a groove (38), wherein the groove having depth 0.3 mm which is higher than 50 nanometer (See col.7 lines 15-24). It further teaches that the formatted surface having a track pitch which is less than 0.37 micrometer (See col.4 lines 1-5), which can be understandable that the formatted surface having track pitch which is less than 425 nanometer as well as less than 700 nanometer.

10. It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the invention of Kerfeld ('838) by providing track pitch which is less than 425 nanometer because such an alignment is involved to increase the degree of the modulation for enlarging the tracking signal as suggested by Sandstrom ('955).

11. Claims 33-34 and 43-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kerfeld (U S Patent No. 6,190,838) in view of Sandstrom (U S Patent No. 6,382,955) as applied to claims 30-32, 35,

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42 and 45-46 above, and further in view of Sasaki et al. (U S Patent No. 5,325,353).

12. Kerfeld ('838) and Sandstorm ('955) disclose all claimed structural limitations as discussed above. Furthermore, Sandstrom ('955) teaches that the track pitch of the formatted surface is 370 nanometer which is less than 425 nanometer. But they fail to teach or suggest width of the groove bottom greater than 250 nanometer.

13. Sasaki et al. ('353) discloses an optical recording medium which comprises a substrate having groove surface and land surface, wherein width of groove surface is 1.0 micrometer, while the width of the land top portion is 0.6 micrometer, which proves that the groove bottoms are wider than the land tops (See col.1 lines 41-49), wherein the width of the groove bottom is 1 micrometer, which is converted to 1000 nanometer, is greater than 250 nanometer. It discloses width of the groove is 1000 nanometer which is greater than 25% of the track pitch as well as greater than the 35% of the track pitch.

14. It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the invention of Kerfeld ('838) and Sandstrom('955) by providing width of groove bottoms greater than 250 nanometer for increasing the quantity of reflected

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light of a laser beam thrown on the groove surface during the recording process to improve the measure of evaluation of noise in the product (See col.1 lines 60-65 and col.2 lines 6-9) and to enable three spot tracking performance (See col.2 lines 10-21) as suggested by Sasaki et al. ('353).

15. Claims 42-46 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Suzuki et al. (U S Patent No. 4,947,384).

16. Suzuki et al ('384) discloses the master stamper (See col.4 line 41) which comprises the data layer (5) on the lower side surface of the stamper; and a stamper pattern formed in the data layer (5) defined by adjacent stamper lands (3) and the stamper grooves (2) (See col.1 lines 11-16), wherein the stamper grooves (2) extend down into the stamper surface, wherein the groove (2) defines the groove bottom and the stamper land defines the stamper land top. It further teaches that the track pitch is less than 700 nanometer as well as 425 nanometer by providing 1.6 micro inches, which converts to 40.64 nanometer (See col.1 lines 49-67). Figure 2 teaches that the groove bottoms are flat and coplanar, while figure 3 teaches that the groove bottoms include sharp corners. It further teaches that the width of the groove bottom is 0.8

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micro inches, which converts to 20.32 nanometer, which value is greater than 35 percent of the track pitch (See col.1 lines 49-67). It further teaches that the depth of the groove is one eighth of the reading laser beam wavelength, thus inherently discloses a groove depth within the claimed range based on the desired depth related to the laser beam wavelength (See col.1 lines 49-67).

17. Claims 42 and 46 of the instant application contain the method step for the production of the second-generation stamper, which is created from a first generation stamper, and also the laser spot size associated with a laser used to perform laser etching of the master pattern of the master disk. With regard to the claim recitations regarding the method of forming the apparatus, such relate to the method of producing the claimed apparatus, which does not impart patentability to the apparatus claims. The determination of patentability is based on the product apparatus itself, *In re Brown*, 173 USPQ 685, 688, and the patentability of a product does not depend on its method of production, *In re Pilkington*, 162 USPQ 145, 174; see also *In re Thorpe*, 227 USPQ 964 (AFC 1985). Therefore, claims 42 and 46 are being unpatentable over the prior art, *Suzuki* ('384).

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18. Claims 30-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. (U S Patent No. 4,947,384) in view of Sasaki et al. (U S Patent No. 5,325,353).

19. Suzuki et al ('384) discloses the master stamper (See col.4 line 41) which comprises the data layer (5) on the lower side surface of the stamper; and a stamper pattern formed in the data layer (5) defined by adjacent stamper lands (3) and the stamper grooves (2) (See col.1 lines 11-16), wherein the stamper grooves (2) extend down into the stamper surface, wherein the groove (2) defines the groove bottom and the stamper land defines the stamper land top. It further teaches that the track pitch is less than 425 nanometer by providing 1.6 micro inches, which converts to 40.64 nanometer (See col.1 lines 49-67). Figure 2 teaches that the groove bottoms are flat and coplanar, while figure 3 teaches that the groove bottoms include sharp corners. It further teaches that the width of the groove bottom is 0.8 micro inches, which converts to 20.32 nanometer, which value is greater than 35 percent of the track pitch (See col.1 lines 49-67). It further teaches that the depth of the groove is one eighth of the reading laser beam wavelength, which means if the Ar laser wavelength is 500 nm, so depth of the groove which is 1/8 of laser wavelength will give value higher than 50nm,thus

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it can be understandable to have a groove depth within the claimed range based on the desired depth related to the laser beam wavelength (See col.1 lines 49-67).

20. Claim 35 of the instant application contains the method step for the production of the claimed the second-generation stamper, which is created from a first generation stamper. With regard to the claim recitations regarding the method of forming the apparatus, such relate to the method of producing the claimed apparatus, which does not impart patentability to the apparatus claims. The determination of patentability is based on the product apparatus itself, *In re Brown*, 173 USPQ 685, 688, and the patentability of a product does not depend on its method of production, *In re Pilkington*, 162 USPQ 145, 174; see also *In re Thorpe*, 227 USPQ 964 (AFC 1985).

21. Thus, Suzuki et al. ('384) discloses all claimed structural limitations as discussed above, but fails to teach or suggest that the groove bottoms are wider than land tops.

22. Sasaki et al. ('353) discloses an optical recording medium which comprises a substrate having groove surface and land surface, wherein width of groove surface is 1.0 micrometer, while the width of the land top portion is 0.6 micrometer, which proves that the groove bottoms are

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wider than the land tops (See col.1 lines 41-49), wherein the width of the groove bottom is 1 micrometer, which is converted to 1000 nanometer, is greater than 250 nanometer. It discloses width of the groove is 1000 nanometer which is greater than 25% of the track pitch as well as greater than the 35% of the track pitch.

23. It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the invention of Suzuki et al. ('384) by providing groove bottoms are wider than land tops for increasing the quantity of reflected light of a laser beam thrown on the groove surface during the recording process to improve the measure of evaluation of noise in the product (See col.1 lines 60-65 and col.2 lines 6-9) and to enable three spot tracking performance (See col.2 lines 10-21) as suggested by Sasaki et al. ('353).

Response to Arguments

24. Applicant's arguments filed on 8/24/2007 have been fully considered but they are not persuasive.

25. Applicant argues that the prior art Suzuki is non-enabling of the dimension required by Applicant's claims. It further argues that the mis-translated dimension of 1.6 micro inches track pitch and of 0.8 micro inch groove dimensions are not enabled. It further argues that

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the prior art, Suzuki does not enable any way to obtain an optical diffraction pattern from a pattern of sub-optically diffracting pitch but instead presumes conventional tracking means which is consistent with 1.6 micro meter pitch of priority documents JP 62-90081.

26. This is not found persuasive because the rejection of claims is based on the US reference Suzuki (U S Patent No. 4,947,384), not the foreign reference, wherein U S reference discloses all claimed structural limitations as discussed above with the dimension of micro inches. Therefore, Suzuki is enabling of the dimension as required in claims 36-41 of the instant application. Furthermore, Applicant's arguments are not sufficient to overcome the disclosure of the prior art, Suzuki. Therefore, Applicant is advised to submit the certified copy of the foreign prior art JP 62-90081 and also to submit declaration affidavit of one of known in the art which indicates that it can not be obvious to have dimension of track pitch and groove as defined in the claim of the instant application.

Conclusion

27. JP (2-10536, which is cited by Applicant on PTOL-1449) discloses manufacture of optical substrate which comprises substrate having land portion and groove bottom, wherein groove bottom is 1.1

micrometer and land portion is 0.5 micrometer, which inherently suggests that the groove bottoms are wider than the land portion. It further teaches that the track pitch is approximately 1.6 micrometer which is higher than the 425 nanometer.

28. Deguchi et al. (U S Patent No. 5,477,524) discloses a substrate as a stamper for use in the recording of information, wherein the substrate having a surface with data layer wherein data layer comprises groove and land (see col.1 lines 38-45). It further teaches that the groove bottoms are wider than the land tops (See figure 11A), wherein the width of the groove bottoms is set within the range of 0.3 micro-meter to 0.5 micro-meter (See col.2 lines 60-65) which converted to 300 nanometer to 500 nanometer. It further teaches that the stamper pattern defines a track pitch which is approximately 0.32 times of the diameter of the laser spot which is associated with the laser (See col.2 lines 9-14, figure 13).

29. Inoue (U S Patent No. 5,705,105) discloses an apparatus for making optical disk which comprises a stamper (11) having a track pitch 0.6 micrometer which is less than 700 nanometer and depth of the groove 110 nanometer which is greater than 50 nanometer (See example 4).

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30. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DIMPLE N. BODAWALA whose telephone number is (571)272-6455. The examiner can normally be reached on Monday - Friday at 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Yogendra N. Gupta can be reached on (571) 272-1316. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Dimple N Bodawala
Examiner
Art Unit 1791

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